

A Work Project, presented as part of the requirements for the Award of a Master Degree in Management from the NOVA – School of Business and Economics.



**-Valuation of a Health Care Company on the example of Universal Health Services, Inc. -**

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## Abstract

The purpose of this report is to guide the reader's decision whether to invest or not to invest in Universal Health Services, Inc. (UHS) stocks. To provide comprehensive insides, we first analysed the business model, the hospital industry in the USA, macroeconomic trends and the political environment that could influence the valuation of UHS. Based on the gathered information, we performed three different types of valuation models. A peer multiple-based valuation, a residual operating income valuation and a discounted cash flow valuation. All three models lead us to the belief that the intrinsic value of UHS' share is essentially higher than the market valuation of 106,81 US\$ on the 02.01.2017. For UHS, we set a target price of **123,31US\$**.

Therefore, we conclude that the share of Universal Health Services, Inc. is undervalued and give the recommendation: **BUY**.

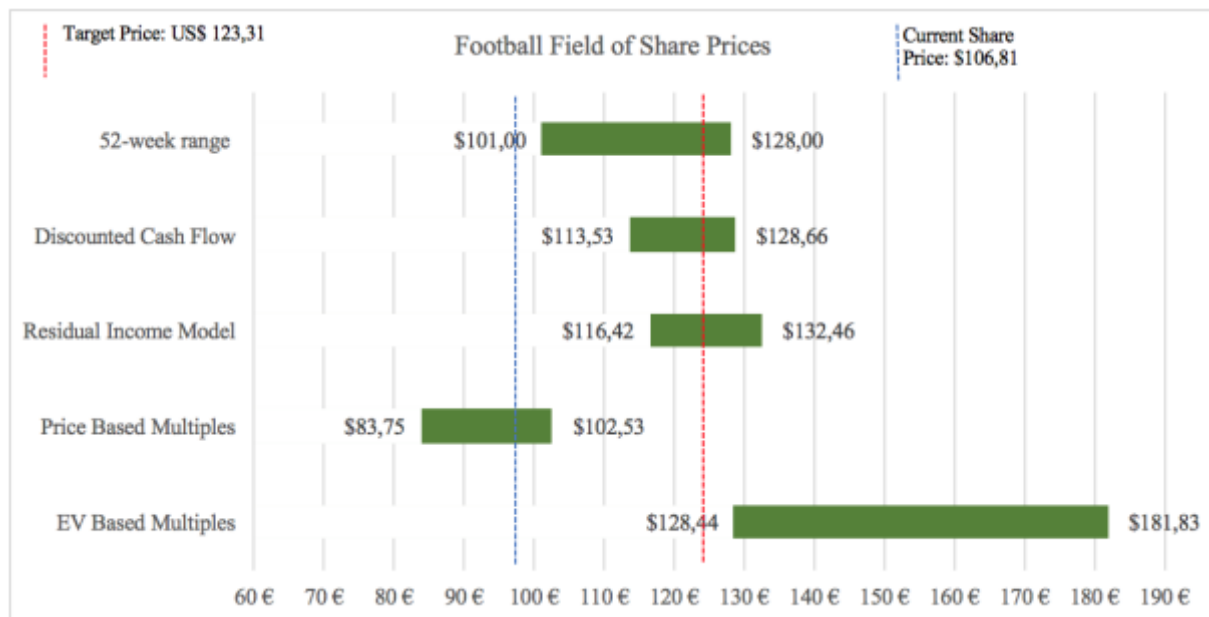


Exhibit No. 1 (Own illustration)

**Key Words:** UHS, Hospital, Healthcare, Valuation

## Business Overview

### Value Generation

UHS is a US. American Healthcare company, based in King of Prussia, Pennsylvania. UHS generates its revenues by owning and operating acute care hospitals, behavioural health centres, surgical hospitals, ambulatory surgery centres and radiation oncology centres. By the end of 2016, the company owned and/or operated 25 inpatient acute care hospitals, 3 free-standing emergency departments and 213 inpatient and 16 outpatient behavioural health care facilities located in 37 States. For example: Washington D.C., the United Kingdom, Puerto Rico and the U.S. Virgin Islands. Within their facilities, UHS offers a broad range of services including general and speciality surgery, internal medicine, obstetrics, emergency room care, radiology, oncology, diagnostic care, coronary care, paediatric services, pharmacy services and/or behavioural health services. UHS is among the best performing companies within the industry, revealing revenues of \$9,76bn with a net income of \$720m in 2016 (UHS, 2017) Their two main operating revenue streams come from acute care hospitals (46,36% of total revenues) and behavioural health centres (53,05% of total revenues).

<b>Revenue Segmentation</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Acute Care Hospital Revenues</b>	<b>4.030.339</b>	<b>4.292.926</b>	<b>4.527.263</b>
<i>% of Total</i>	<i>49,12%</i>	<i>47,47%</i>	<i>46,36%</i>
<i>Acute Care Growth</i>		<i>6,52%</i>	<i>5,46%</i>
<b>Behavioural Health Revenues</b>	<b>4.110.749</b>	<b>4.689.029</b>	<b>5.185.232</b>
<i>% of Total</i>	<i>50,10%</i>	<i>51,85%</i>	<i>53,09%</i>
<i>Behavioural Health Growth</i>		<i>14,07%</i>	<i>10,58%</i>
<b>Other Revenues</b>	<b>64.000</b>	<b>61.495</b>	<b>53.714</b>
<i>% of Total</i>	<i>0,78%</i>	<i>0,68%</i>	<i>0,55%</i>
<i>Other Revenue Growth</i>		<i>-3,91%</i>	<i>-12,65%</i>
<b>Total Revenues</b>	<b>8.205.088</b>	<b>9.043.451</b>	<b>9.766.210</b>
<i>% of Total in US Market</i>	<i>7.876.884</i>	<i>8.229.540</i>	<i>8.301.279</i>
<i>% of Total in UK Market</i>	<i>315.075</i>	<i>740.659</i>	<i>1.464.932</i>

Exhibit Nr. 2 (own illustration)

Behavioural health deals with mental health problems such as addictions, psychological problems or other behaviours that could cause an illness. UHS realized the potential of behavioural health already in 1983, when the company acquired Qualicare, which included 4 behavioural health hospitals. Now, they are the leading operator of behavioural health centres in the US. In 2016, UHS employed over 80.000 people in their facilities. The company states that its mission is to “provide superior quality healthcare services that patients recommend to families and friends, physicians prefer to their parents, purchasers select for their clients, employees are proud of and investors seek for long-term returns” (UHS, 2017). UHS follows a long-term corporate strategy of growing both inorganically and organically. In 2016, they acquired, leased or built 85 new health care facilities in the USA and the UK. Most of them financed by the issuance of new debt. In the process of strong revenues growth (CAGR of 6% from 2014-2016), UHS always managed to stay profitable. Furthermore, they maintain a very strong balance sheet and are rated amongst the highest in the hospital services industry by Moody’s (Ba1) and Standard & Poor (BBB+) (Moody’s, 2017).

In 2015, their acute care hospitals had an occupancy rate on licensed beds of 57% and 75% in Behavioural Health Centres. Compared to their competitors, which have an average of 51% and 72% respectively, UHS is a successful and recognized brand in the market (OECD, 2016)

### **Key Markets**

UHS operates hospitals across the whole country but has an emphasis on three key States in the US. In Nevada, UHS is generating 16% of their total earnings. The main reason for this is the suicide rate in Nevada, which is amongst the highest in the US. It is caused by gambling, social isolation, and an underfunded social system. Therefore, the behavioural health centres of UHS are

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very profitable in this region because of the high demand for mental treatment (The Trace, 2016).



Exhibit. No. 3 (UHS, 2017)

The second and increasingly important key market for UHS is Texas. It is the fastest growing healthcare market in the US. (18% of total states and 15% of operating revenues UHS). UHS plans to invest in Texas, as there is a similar trend like in Nevada (gambling and social insecurities are rising). The CEO, Alan B. Miller already announced that Texas will be one of their main focuses in terms of investments in the coming years. The third most important market is California with an operating revenue of 9% (UHS, 2016).

## Share Price Performance:

UHS has managed to provide investors with good returns in the past. In 2016, they revealed EPS of \$7,32, which is a 60,88% increase to the \$4,55 they had in 2013. On an annualized basis, the company has delivered returns of 23,8% from 2011 to December 2014.

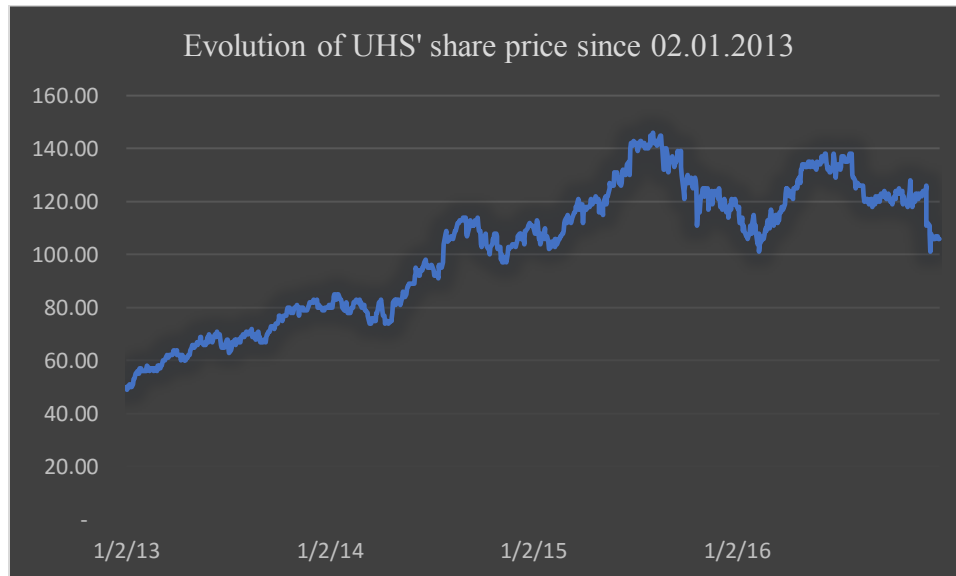


Exhibit. No. 4 (Yahoo Finance, 2017)

During the same time, the group of UHS' main competitors only managed to return shareholders 16,23% on average.

The UHS stock also managed to outperform the Health Care Select Sector SPDR ETF tracking the performance of Health Care stocks in the US by ca. 5%, (Orange line in exhibit no. 5) (Yahoo Finance, 2017).



Exhibit. Nr. 5 (Bloomberg, 2017)

## Shareholder Structure

UHS is listed at the NYSE since 1991 and is now ranked at place 290 of the American Fortune 500 companies. It is also named among the Fortunes Worlds most admired companies, ranked 1<sup>st</sup> in social responsibility and 2<sup>nd</sup> in overall healthcare industry. This attracts many institutional investors like mutual funds holding 95,60 % of the floating shares of UHS (97,32 %) by the end of 2016. The rest is held by insiders and owners. Unlike other companies in the sector, the government has no stake in the company, which provides great freedom of decisions. Other companies must fight with government influence and the conflict between offering healthcare services to everyone at a reasonable price and targeted profitability (Yahoo Finance, 2017).

UHS operates all their entities through separate subsidiaries. For every service provider, there is an own legal entity, which are all vertically integrated (UHS, 2017).



## Industry Overview

### Legal Structure and Ownership of US hospitals

Analysis the US hospital industry it is important to understand the structure and the different healthcare providers within the market. In total, there are 5564 hospitals officially registered in 2016 compared to the 5742 back in 2012. Most of them (91%) are acute care facilities, the rest is compiled of ambulant facilities for illness, rehabilitation or psychiatric diseases (Health Data.gov, 2017) Then, hospitals are either for-profit or non-profit.

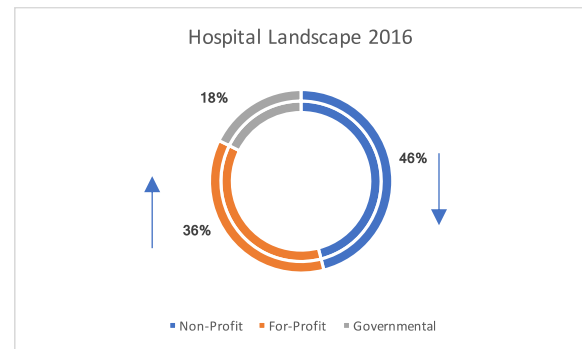
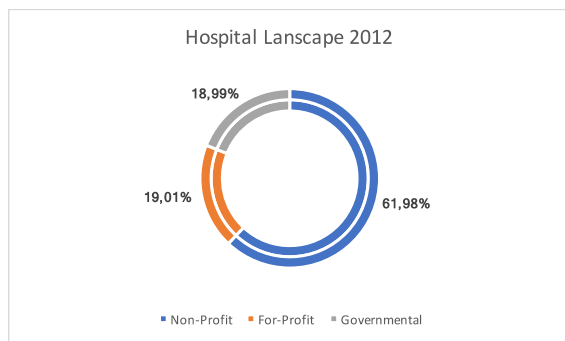


Exhibit No. 6 (Hospital & Health Networks, 2016) Exhibit No. 7 (H&HN, 2016)

UHS belongs to the 36% of for-profit hospitals with 45% still operating on a non-profit basis, meaning that excess funds remain within the hospital. The last 17% are governmental facilities that can be categorized as non-profit companies as well. By looking at exhibit no. 6 and no. 7, it is clear to see that the landscape of hospitals has changed during the past 4 years. The percentage of for-profit hospitals in the market has almost doubled. Also, the total number of hospitals has decreased. A lot of rural hospitals were closed because of financial problems. The main reason for this development is the ongoing urbanization leading to reduced numbers of patients in rural areas. As of December 2016, 80 rural hospitals have closed in the last six years. About 673 rural hospitals across 42 states are vulnerable to closure, according to a February 2016 study from iVantage

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Analytics (iVantage Analytics, 2017). Throughout the whole industry, the struggle with costs and ability to invest is forcing many players out of the market. Consequently, there must be a change of mentality within the US-Hospital market to adapt a more capitalistic way of thinking. According to a Deloitte report on the outlook of the sector, the hospital market will further experience a wave of consolidations and conversions in the coming years. Even though hospital mergers and acquisitions activity dipped slightly in 2016 (102) compared to 2015 (112), last year's volume is still a significant increase (55%) from the 66 transactions announced in 2010. The sustained M&A activity is not surprising due to healthcare organizations' concerns about financial viability in the rapidly changing market. Ultimately, the companies that will be able to manage clinical and financial risk will be successful (Deloitte, 2017).

### **Competitive landscape**

To analyse the competitive landscape, we will perform a Porter's 5-Forces analysis.

The degree of competition among existing firms in the hospital market is extremely high. The intense competition leads to reduced profits for companies throughout the industry. Some of the biggest private hospital chains in the US like Tenet Healthcare or Community Health Systems are constantly performing a loss, which is due to the very fierce competition within the industry (Yahoo Finance, 2017). In general, big hospital companies acquire and reorganise badly performing hospitals. Subsequently, they are integrated into the own structure aiming for increased profitability. Large companies have advantages in buying supplies, sharing best practices, and negotiating contracts with health insurers.

The bargaining power of suppliers is high, as private hospitals largely depend on suppliers of drugs and specific brands of medical devices. Consequently, there is a need for economies of scale within

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the industry. (MegaMinds, 2017). In addition, the shortage of qualified personnel puts huge pressure and anxiety on hospital companies. Hospitals compete for physicians, and seek to attract doctors with state-of-the-art equipment and an attractive work environment. Taking the shortage of nurses in the US as an example, the industry has been dealing with a nursing deficit of varying degrees for decades. Today, due to an aging population, the rising incidence of chronic diseases, an aging nursing workforce, and the limited capacity of nursing schools, this shortage is on the cusp of becoming a crisis which will have worrying implications for patients and health-care providers alike (The Atlantic,2016). According to the Bureau of Labour Statistics, the shortfall of qualified nurses in 2025 is expected to be “more than twice as large as any nurse shortage experienced since the introduction of Medicare and Medicaid in the mid-1960s” (Bureau of Labour Statistics ,2016). This trend forces hospital companies to act and proactively offer incentives like reasonable wages to nurses.

A factor that is contributing positively to hospital companies is the very low bargaining power of buyers as patients will get sick and need hospitals, regardless of whether the economy is in a good or bad state. Most of the time, Patients are not able to choose the hospital they are visiting. Contributing to this, patients of private hospitals are generally less price sensitive and are prepared to pay what is necessary to become healthy again. For insured patients, the phenomenon of moral hazard can be observed. If the patients “do not have to pay for their medical bill themselves”, they are much more likely to consume hospital services.

Within the private hospital industry, the threat of new entrants is very low. Economies of scale have such a big impact on unit costs that smaller industry players have very little chance of surviving. Smaller players must focus on specialization within their niche to stay competitive.

Furthermore, the health care sector in general is highly regulated. Hospital providers must be in compliance with a lot of rules, so that it discourages many from entering the market (Marketrealist.com, 2014)

The threat of substitute products within the hospital sector is very unclear. There is a growing trend for medical treatment to be conducted outpatient. Therefore, the market experiences an emergence of many new players who are offering outpatient treatment. Consequently, the big hospital chains are buying smaller outpatient centres and integrate them into their own structure. Also, new technological possibilities like distance treatment and the improved use of patient data are becoming increasingly important. This is an opportunity for hospitals to differentiate themselves from others and to stay ahead. Other than that, the threat of substitutes stays relatively low, as patients do not have a say in choosing hospitals most of the time (especially when they are distributed by an emergency). Hence, hospitals are pressured to effectively shape their operations in terms of efficiency and quality to stay competitive. After analysing the industry environment, we can conclude that UHS is very well positioned to stay among the major players in the US hospital industry. The company has the required resources and size to cope with the upcoming demands of the healthcare sector and there is no reason to believe that their successful performances of the past years cannot continue.

## Macroeconomic Outlook

### Demographic change

There are many demographic trends that pressure the US hospitals to adopt a “capital market thinking.” First, there is an aging society, that has a growing number of old people, who are not contributing to the health system anymore but are the most likely ones to receive medical benefits. 14,5% of the total US population is represented by older people being at least 65 years old. Calculations show that by 2040, this number will rise to 21,5%. This huge increase would mount additional pressure on the healthcare system in the US. Additionally, the fast-developing technology and improvement of treatment and medication is helping people to grow much older than before. (OECD, 2017). In 2015, the average age of a citizen in the US was 38.01 years. According to World bank forecasts, the average age in 2050 will be 41,7 years meaning that more and more people will need medical treatment (Our World in Data, 2017).

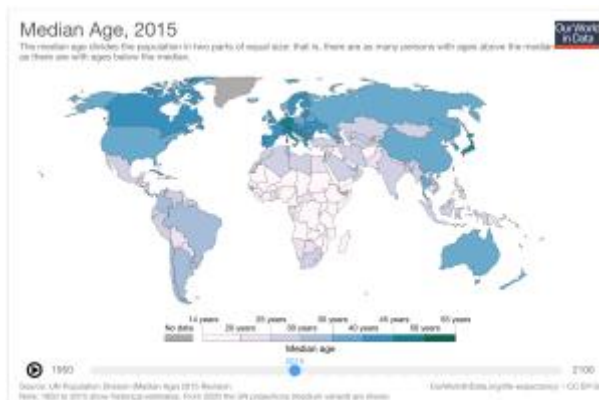


Exhibit No. 8 (Our World in data, 2017)

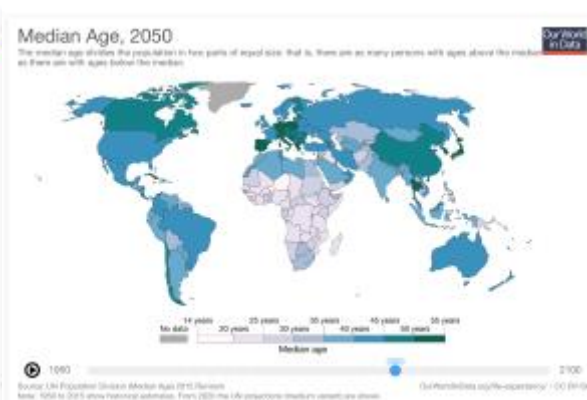


Exhibit No. 9 (Our world in data, 2017)

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Another factor that will be highly relevant for hospital service providers in the near future are the consequences of the very unhealthy lifestyle of the US. Population within the past 20 years. It is widely known that US citizens are living a very unhealthy lifestyle, eat huge amounts of fast-food, smoke a lot and don't get involved in enough exercise. Only 2,7% of the US. citizens really care about their eating habits or pay attention to nutrition when going shopping (Health.com, 2017). Even though there is an improving trend to a healthier lifestyle, with more enlightenment and awareness, the consequences are and will be damaging in the future. The number of diseases like diabetes, arteriosclerosis, heart attacks and even cancer, that are all related to an unhealthy lifestyle, have risen to dramatic heights. Diabetes, mostly caused by obesity, is the fastest growing chronic disease in the US and now in position 7 of the leading causes of death (Centre for disease control and prevention, 2017).

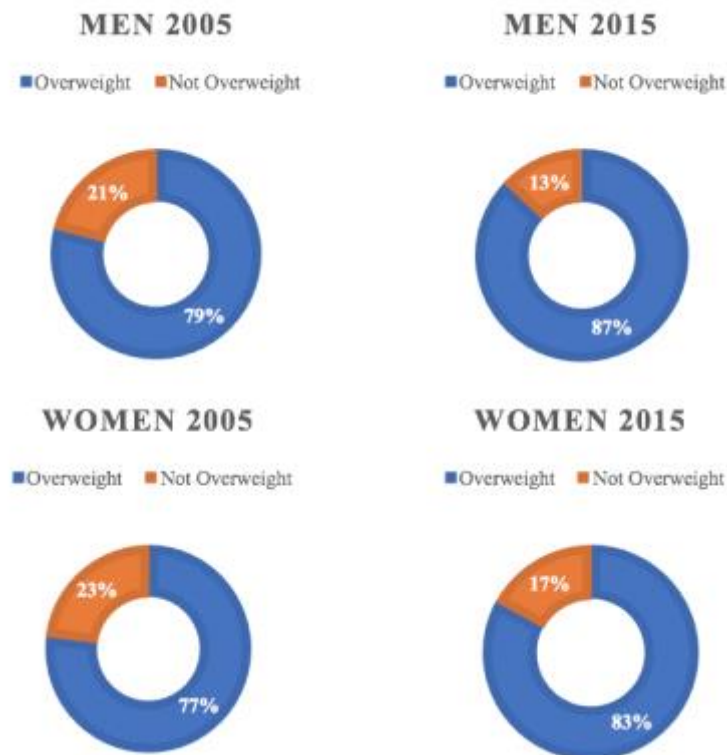


Exhibit No. 10 (World Health Organization, 2016)

More than 29 million US adults have diabetes, and 25% of them do not know it. About 86 million US adults—more than a third—have prediabetes. In the international comparison, the US is the leading country in terms of relative people suffering from chronic diseases (Centre for disease control and prevention, 2017).

## **Macroeconomic and Political Trends**

To further understand the future development of the hospital industry, we must look at the current macroeconomic trends and understand the difficulties arising from regulations and the political situation. Generally, the US economy outlook is healthy according to the key indicators. The Real GDP is expected to grow 2,27% in 2017 (subtracting inflation). Unemployment is forecast to continue at the natural rate, which is a combination of frictional, structural and surplus unemployment and lies between 4,7 and 5,8% (Considered as full-employment). Also, the average net income of US citizens is at an all-time high at 48.695 US\$ (OECD, 2017). Basically, the US economy outlook for the next couple of years can be considered as a Goldilocks' Economy (target economic situation). Nevertheless, newly elected President Donald Trump is adding uncertainty over the stability of the US Economy. He recently announced his plans to achieve a 4% real GDP growth rate, which is not considered healthy anymore because it leads to an overconfident irrational exuberance, describing a boom that could end up in a very damaging bust (CNN Money, 2017).

Analysing the yield situation, the USA comes out of a long period of zero yield. The Federal Open Market Committee first raised the fed funds rate to 0.5 percent in December 2015 and raised interest rates again in December 2016 to 0.75 percent. This can have an impact on UHS' acquisition policy. Even though the interest rates for new debt are still very low, the investment costs will be higher

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than before. Looking at the current stock market, the S&P500 experienced its highest year-ending close of all time (Marketwatch, 2016) Many of the companies in the US are the peak of their cycle and forecasts are rising very high. This can be an indicator of a stable economy in the next years or a sign that a new recession might erupt soon.

A lot will depend on the future actions of President Trump. Especially by announcing to revert the Affordable Care Act, known as “Obamacare.” (Reuters, 2017). Obamacare has endured a lot of controversy since its introduction. Before, high costs made the U.S. health care system cost twice as much per person as any other developed country. As a result, healthcare contributed \$3.2 trillion, or 17.8 percent, to GDP (The Balance, 2017). After the introduction of Obamacare, the governmental healthcare bill threatened to take over the entire US governmental budget. On the other hand, Obamacare has been successfully equipped people with a health insurance. Since 2010, more than 50 million people could become newly insured. Until 2012, healthcare bills were the number one cause for personal bankruptcy in the US (The Balance, 2017). With more people being insured, there were a lot more possibilities for people to use hospital services than ever before. This has been one of the main reasons for the strong revenues growth of the whole hospital sector in the past couple of years. It is still unclear if and if so in which form President Trump will revert Obamacare. It seems very unlikely that most newly insured people will lose this insurance again, so that the recent trend of revenue growth will not be interrupted.

## **Business Analysis and Growth Assumptions**

To understand the growth assumptions for our financial models, it is vital to look at the conclusions that can be drawn from the different internal and external influence factors. First, we looked at the



UHS' CAGR of Sales over the past 5 years which is 8,29% (NYU, 2017). Compared to the Health Care Sector, that had a total CAGR of Sales during the past 3 years of 5,23% UHS underperformed. This is caused by the relatively low CAGR in the years 11-13. Nevertheless, most of the rival companies that experienced high sales growth were not able to stay profitable and mostly reached their growth targets through inorganic growth. UHS has found a good mixture of acquisitioned growth and organic growth while keeping their balance sheet in order. They have still room to take on more debt, for example through the emission of more corporate bonds, as their rating is one of the best within the industry.

By looking at the two different segments UHS operates in (Acute Care and Behavioural Health) it can be analysed that the behavioural health segment experienced more growth than the acute care. There are several reasons for this. First, UHS acquired a lot of facilities within the BH Sector and secondly the number of patients with mental diseases rose to record highs in the last years. (Fortune.com, 2016). As UHS states in their strategy formulation, they will look to further expand within the behavioural health segment. Therefore, we can assume a slight growth within this sector over the next couple of years. The Acute Care sector will also see an increase in the next couple of years. As we elaborated in the "Macroeconomics Section", there are many factors that play a favourable role for UHS' sales. Positive GDP Growth forecasts, the demographic change, the increase of disease severity and especially the growing consolidation trend are all indicators that UHS will be able to further outperform the industry average growth. Generally, the growth assumptions we assumed are on a relatively conservative basis. UHS states that it wants to further expand their business, especially within the behavioural sector while maintaining their good credit rating, which will be extremely difficult with a higher leverage ratio. Our WACC calculation is in accordance with a leverage ratio that would enable UHS to keep their actual rating (Moody's, 2017).

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Currently, the acute care revenue share is 46,34%. We believe that the revenue will shift even more to the behavioural health revenue stream and considered this in our growth analysis. Until 2021, we assumed the behavioural health stake to be 58,58% of total revenues. This trend would make sense for UHS, as this can further be a decisive USP in the fight for market share being in accordance with their corporate strategy.

Furthermore, we added an uncertainty premium in year 2021, which is the terminal year for our DCF valuation as well as for the Residual Operating Income Model. The uncertainty premium is added because of the continuous uncertainty around regulations within the sector. Especially with the election of Donald Trump as the president of the USA, the withdrawal of “Obamacare” could have a decisive impact on the whole industry. As explained, hospitals experienced a lot of growth due to the increase of insured people and the related incentive to visit hospitals more often (The Motley Fool, 2016). If this effect is cancelled, hospital chains would need to adjust their strategy and growth targets. Nevertheless, a withdrawal of Obamacare would not mean that every newly insured citizen would immediately lose it again, so the probable effects can’t be predicted precisely. One factor that must be considered is the sales development in the UK. In 2016, 15% of revenues were generated in UHS UK facilities. It is expected that UHS will grow in the UK as well and reach a target of 20% revenue recognition until 2018. If they can reach this goal is questionable, as the Brexit decision shadowed a lot of political uncertainty over the UK and hence, could influence investment decisions.

Moreover, UHS’ management team gives reason to believe that the company will further extent their strong revenue growth. The team around CEO and chairman of the board Alan B. Miller has managed to keep UHS profitable during the past couple of years which is a rarity within the rough hospital industry. UHS has managed to keep a very healthy balance sheet and at the same time

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grow organically as well as through acquisitions. It is pivotal for UHS to keep their good management team together and to further act with sense and intelligence. Based on the conducted research, it can be assumed that UHS' sales will continue to grow steadily and finally be above the CAGR of the industry of the last 5 years.

### **Return on Invested Capital – Ratio Analysis**

The first step to arrive at a forecast for our valuation is to analyse the current state of the financial statements. Therefore, we set up an analysis that shows the different drivers of the Return on Common Equity (ROCE). First, we had to separate core revenue from non-core revenue items. As there is no information given about non-core items and the company does not engage in any non-operating activities, we consider all the revenues as core items. In 2016, UHS achieved a ROCE of 15,23%, which basically means that the company earned 15,23 cents of profit per investment dollar (StrategicCFO.com, 2017) Compared to the hospital industry average ROCE, which is 4,97%, UHS is outperforming the market. The high ROCE of UHS is driven by the favourable financial leverage (gearing) of 0,95 and the high spread, which is the difference between Net Borrowing costs and the Return on Net Operating Assets (RNOA) (Penman, 2013). Hence, the high ROCE ( $RNOA + (FLEV * SPREAD)$ ) is driven by the good RNOA, the favourable gearing and the high spread. Analysing the ROCE from another perspective, we can conclude that the Operating Liability Leverage (OLLEV) of 0,15 is favourable to ROCE because the Return on Operating Assets is greater than the ST- borrowing rate. The Profitability is affected by both financial leverage and operating liability leverage. Without either type of leverage, ROCE would be equal to ROOA, the rate of return on operating assets. OLLEV levers RNOA over ROOA and financial leverage

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levers ROCE over RNOA. As both is favourable in the case of UHS, the company can outperform its peers within the market. These results tell us, that the current capital structure and the business model both work in favour of the company's results. There is still room for more financial liability, which could gear up the company's operations, for example with further hospital acquisitions and the achievement of economies of scale.

Analysing the drivers of operating profitability, we look at the Return on Net Operating Assets composed of the Profit Margin multiplied by the Asset Turnover. The Operating Profit Margin lies at a very good 8,23% and the ATO 1,09 which means that the firm is generating 1,09 dollars for every dollar invested in assets.

## WACC Calculation

One of the main drivers of all the valuation techniques used in this report are the Weighted Average Cost of Capital (WACC).

The cost of equity was calculated using the Capital Asset Pricing Model. For the US risk free rate, the 10 years US Government bond rate of 2,41% was used (January 2017).

Calculation Beta:	Company Name	D/Capitalization-Ratio	Unlevered Company Beta
<b>Industry Beta:</b>	UHS	0,38	1,77
<b>1,10</b>	Da Vita ,Inc.	0,99	0,68
	HCA Holdings, Inc.	1,02	0,66
	Tenet Healthcare Corp.	9,39	0,07
	Community Health Systems, Inc	16,11	0,04
	LifePoint Health	1,16	0,58
<b>Re-Levered Beta UHS:</b>	<b>Industry Average</b>	<b>5,74</b>	<b>0,41</b>
<b>1,193</b>			
	<b>Target D/Cap.-Ratio</b>	<b>1,80</b>	

Exhibit No. 11 (Own illustration)

To get a clear view of UHS's company beta, we first un-levered the different company betas based on their Debt /Capitalization ratio and then re-levered the average industry un-levered beta with a

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target Debt/Capitalization Ratio of 1,8. The target D/Cap- Ratio of 1,8 assumes that UHS will further go on with their expansion policy, changing their leverage level accordingly. As the average D/Cap-Ratio within the industry is 5,74, a target Ratio of 1,8 seems reasonable, given the plans that UHS Management declared. This leads us to a re-levered company beta of 1,127. Combined, we arrive at cost of equity of 12,19%. For the cost of debt, the average cost of debt of 4,1% given by the notes to the financial statement was used leading us to a final WACC of 7,77%.

### **UHS Weighted Average Cost of Capital Calculation**

Interest Expenses	\$	-125.053,00
Net Financial Obligation	\$	3.856.176
Financing Costs incurred		3,24%
Average Cost of Debt		4,10%
Default Rate in HC Industry		0,70%
Cost of Debt		4,10%
Equity	\$	4.533.220
Statutory Tax rate		37,4%
Beta		1,193
Return of the Market		10,61%
Risk-free		2,41%
Cost of Equity (CAPM)		12,19%
<b>WACC</b>		<b>7,77%</b>

Exhibit No. 12 (own illustration)

## **Multiples Valuation**

To provide investors with another assessment of the UHS stock, it is mandatory to look at a multiples valuation based on relative performance data of competitors. Therefore, the competitors HCA, Tenet Healthcare, DaVita Inc., Community Health Systems and LifePoint Health were used as industry peers. The Multiples used are EV/Sales, EV/EBITDA, EV/EBIT, Price/Earnings and Price/Book. By taking an average of all the multiple valuations used a per share value of \$129,81 can be concluded. Valuations varied from \$83,75 (P/E Multiple) to \$181,83 (EV/EBIT Multiple).

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Compared to the actual share price of UHS, which is \$116, it is a difference of \$14,13. This difference can be explained by the fact that we included three multiples that are partially based on the EV, which in turn included the net debt value. As all the other companies within the industry have a much higher leverage ratio, their valuation tends to be higher and could also indicate that UHS has still room for growth through acquisitions by using more debt. It is important to add, that the multiples based valuation only gives the investor a rough indication of where UHS' value truly lies. There is no fundamental analysis included. Therefore, the value can only be used for quick approximations.

	Average	Valuation
<b>EV/Sales</b>	1,27	12.420.552
<b>EV/EBITDA</b>	8,68	14.745.842
<b>EV/EBIT</b>	13,72	17.583.056
<b>P/E</b>	11,57	8.098.258
<b>P/B</b>	2,19	9.914.950
<b>Valuation based on average</b>		<b>12.552.532</b>
Market Capitalization		11.186.256
Difference	-	1.366.276
<b>Multiples Valuation per Share</b>		<b>\$ 129,81</b>
Actual Share price		116
Difference	-	14,13

Exhibit No. 13 (own illustration)

## Residual Income Model

Residual Income is the income a company generates after accounting for the true cost of its capital, which is the cost of funds it uses to finance its business. The residual income model adjusts a firm's future earnings estimates to compensate for the weighted average cost of capital. "Residual" income means more than any opportunity costs measured relative to the book value of shareholder's equity.

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Therefore, the formula for the calculation of the single residual operating incomes is Core Operating Income after tax – (WACC\*NOA), which reflects the equity charge.

For the base case of our valuation, we applied a constant EBITDA-Margin of 17,39%. We took this margin because it is the same of 2016. We have enough reason to believe macroeconomic conditions and industry influences will not affect the EBITDA-Margin heavily. If any, we would believe that the margin improves over time. The WACC lies at 7,19% as computed before. For the calculation of the terminal value, we used a 2,27% perpetual growth rate as this represents the real GDP growth rate for 2017. The sales growth rate is based on the growth model we conducted and is linked to the “Operating Model” sheet in the Excel file. We believe that is a conservative approach, that enables the valuation to be less dependent from the terminal value. Applying these inputs, we arrive at a value of **124,20 US\$** compared to the actual share price of 106,81.

EBITDA-M./Growth	1,47%	1,67%	1,87%	2,07%	2,27%	2,47%	2,67%	2,87%	3,07%
15,00%	84,84	85,71	86,64	87,64	88,71	89,86	91,10	92,45	93,90
15,50%	90,18	91,18	92,25	93,40	94,63	95,95	97,37	98,91	100,58
16,00%	95,52	96,66	97,86	99,16	100,54	102,03	103,64	105,38	107,27
16,50%	100,87	102,13	103,47	104,91	106,46	108,12	109,91	111,85	113,95
17,00%	106,21	107,60	109,08	110,67	112,37	114,20	116,18	118,31	120,63
17,50%	111,55	113,07	114,69	116,42	118,29	120,29	122,45	124,78	127,31
18,00%	116,89	118,54	120,30	122,18	124,20	126,37	128,71	131,25	134,00
18,50%	122,23	124,01	125,91	127,94	130,12	132,46	134,98	137,71	140,68
19,00%	127,58	129,48	131,52	133,69	136,03	138,54	141,25	144,18	147,36
19,50%	132,92	134,95	137,13	139,45	141,94	144,63	147,52	150,65	154,04
20,00%	138,26	140,42	142,74	145,21	147,86	150,71	153,79	157,12	160,73
20,50%	143,60	145,90	148,34	150,96	153,77	156,80	160,06	163,58	167,41
21,00%	148,95	151,37	153,95	156,72	159,69	162,88	166,33	170,05	174,09

Exhibit No. 14 (own illustration)

To get a better picture of the possible developments, we conducted a sound sensitivity analysis that covers different scenarios. Important are the value in dark green to light green varying from a perpetual growth rate of 1,47% to 3,07% and an EBITDA-Margin of 15,00% to 21,00%. In a best-case scenario, UHS' share price could rise to 149,73 US\$. Everything above is extremely unrealistic and not relevant for our valuation. Hence, based on the residual income model, the

intrinsic value of UHS lies at **124,20 US\$**, meaning that currently the market is **undervaluing** the share of UHS.

## Discounted Cash Flow Model

The Discounted Cash Flow Model is a very common methodology estimating the attractiveness of an investment opportunity. After calculating the future free cash flows to the firm, we used the computed WACC in the “WACC section” to discount them and arrive at the present value of future cash flows to the firm.

To arrive at the most precise value possible, we set up a sales growth model, as explained in the “Business Analysis and Growth Assumptions” section. The average sales growth rate for the whole model is 8,86%, which is a conservative approach as well, given the expansion plans that UHS has. For the EBITDA-Margin, we applied a constant margin of 17% until 2019. This is a slight dip compared to 2016 as we believe the integration of the new hospitals that are planned to be acquired need a period of integration. From 2020 onwards, we believe that there will be economies of scale and the EBITDA-Margin will improve to up to 18%. For the terminal year, we decided to use 14,75% EBITDA-Margin as this value goes until perpetuity. A higher value would not reflect a realistic target for UHS. After applying an EBITDA-Margin we deducted accruals that we grew in accordance to sales growth. We believe that is a good indicator of how many accruals are needed when growing the business.

Regarding the Capital Expenditures, we set up a forecast model that tries to forecast CAPEX as well as D&A needs.



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### For CAPEX & D&A Calculation:

	Forecast					
	2016	2017	2018	2019	2020	2021
BGN LT Assets		3.838.225	4.632.348	5.498.126	6.415.754	7.422.376
Capex	- 1.187.217	- 1.266.614	- 1.436.028	- 1.594.456	- 1.796.411	- 2.004.041
D&A	- 416.608	- 472.492	- 570.249	- 676.828	- 789.790	- 913.706
<b>END LT-Assets</b>	<b>3.838.225</b>	<b>4.632.348</b>	<b>5.498.126</b>	<b>6.415.754</b>	<b>7.422.376</b>	<b>8.512.711</b>

CAPEX/Assets	35,08%	33,00%	31,00%	29,00%	28,00%	27,00%
D&A/Assets	12,31%	12,31%	12,31%	12,31%	12,31%	12,31%

Exhibit No. 15 (own illustration)

After computing the current CAPEX/Assets ratio of 35,08%, we believe that this ratio will fall over time as leaving it constant would represent an over proportional assumption and would not reflect realistic CAPEX needs. We also believe that the current D&A Ratio of 12,31% is appropriate and can be applied for the whole planning period. For the terminal year, we assume that the CAPEX is equal to the D&A expense (**Sustaining CAPEX**). This is a common assumption for enterprise valuation as otherwise there is a perpetual value destruction.

### For Working Capital Calculation:

	2016 % of revenue	2016 % of revenue	2017 % of revenue	2018 % of revenue	2019 % of revenue	2020 % of revenue	2021 % of revenue							
Current Assets	1.716.364	18,00%	1.881.371	17,82%	1.804.880	18,00%	2.274.764	18,00%	2.487.821	18,00%	2.704.816	18,00%		
Current Liabilities	1.106.498	12,17%	1.317.373	13,48%	1.429.816	14,00%	1.620.078	14,00%	1.789.261	14,00%	1.942.749	14,00%	2.103.780	14,00%
Working Capital	611.766	6,83%	563.998	5,34%	455.064	4,00%	462.380	4,00%	605.603	4,00%	545.071	4,00%	601.036	4,00%
(Δ Net Working Capital)	-	-	253.990		58.993		38.808		42.624		48.958		46.012	

With a growing asset base, the Working Capital needs will grow accordingly! As a proxy for WCC, we use the sales growth rate for each year

Exhibit No. 16 (own illustration)

Another part of the FCFF computation is the net working capital change. Working capital is the difference between Current Assets – Current Liabilities. We include the change from one year to another to forecast the working capital needs that the business must uphold to keep up with its growth strategy. Therefore, we set up a table that is forecasting the working capital based on the % of total revenues, which we left constant at 4%. The change in NWC in 2016 was extremely high compared to the years before and we believe that it does not reflect a regular development of the working capital. The change in NWC is deducted from the provisional result as an increase in NWC is negatively influencing FCFF as there is more capital tied up in the company. For the computation of the terminal value, once again we used the 2,27% forecasted GDP growth in the

US (OECD, 2017). By inserting the explained inputs into our model, we arrive at a value of **123,13 US\$**. Compared to the actual share price of 106,81 US\$ at the 02.01.2017, we have reasons to believe that the UHS share is **undervalued**. This result is coherent with the other valuation models we set up and supports the observed trend.

## Final Conclusions

After conducting thorough research to set up the different valuation models presented, we conclude that the intrinsic value of UHS is higher than the current market valuation of 106,81 US\$ and is therefore, **undervalued**. We set the target price for UHS at: **123,13 US\$**. We believe that the DCF Valuation is the most accurate one and can be used best to estimate the true value of UHS. There are many indicators that support this estimate, like the macroeconomic trends in favour of UHS including the demographic change, the increase of the severity of diseases, the stable outlook of the US economy, the consolidation trend in the industry. Adding to this, UHS has a very capable and proven management team that has led the company to a period of stable positive financial results and has set up an ambitious acquisition plan. UHS has one of the most stable balance sheet within the industry and one of the best credit ratings. Additionally, UHS is very well positioned within the market Has the necessary resources for coping with upcoming industry demands. This gives us reason to believe that UHS will be able to continue with a strong growth above the industry average of the last 5 years and will further achieve outstanding results in the future.

Consequently, leading to the analyst's recommendation: **BUY**.

## Disclosure and Disclaimer

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A handwritten signature in black ink, appearing to read "Karim Metzner".

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